

REMARKS

The Office Action of February 8, 2007 has been received and its contents carefully considered. An RCE is being filed concurrently in order to permit further prosecution.

The present Amendment revises independent claim 3 to recite that N type ions are implanted into a first region that has a first area and that P ions are implanted into a second region that has a second area. This is supported (for example) by Figures 3(a) and 3(b) of the application's drawings. Claim 3 now also recites that the gate electrodes that are etched have areas that are smaller than the first and second areas. This is supported (for example) by Figure 3(c).

The present Amendment also adds a new independent claim 15, and several dependent claims. Claim 15 is similar to independent claim 3, but does not specify a two-stage etching process.

Finally, the present Amendment cancels dependent claim 13, which has become redundant in view of the changes to claim 3.

The Office Action rejects all of the claims for obviousness based on US patent 6,541,359 to Gabriel et al and US patent 5,665,203 to Lee et al. These references will hereafter be called simply "Gabriel" and "Lee" for the sake of convenient discussion. The rejection is respectfully traversed for the reasons discussed below.

The Office action draws attention to Figure 5A of Gabriel, and to a passage beginning in column 6 of the reference that describes Figure 5A. This passage indicates that a portion 540 of a gate electrode layer 310 can be doped with either N type or P type ions (column 6, lines 49-51). Resist 370 serves as a gate mask and is aligned so that the doped portion 540 exists only under the resist 370 (column 6, lines 52-54). The reference goes on to explain, at lines 54-61 of column 6:

Thus, the gate etch will see only the unimplanted polysilicon in unimplanted portions 560a and 560b. As a result, all portions will signal the endpoint at about the same time, and so a strong and consistent endpoint signal will be induced and detected. Consequently, the gate etch process can be halted and so microtrenching is prevented.

The Office Action takes the position that Gabriel's elements 540 and 555 correspond to both the N type gate electrode and the P type gate electrode that are specified in claim 3. This is not true – the reference says that they can be either P type or N type. More importantly, though, the reference teaches that the region that is doped should have an area that is the same as the area of the resulting gate electrode. As a result, Gabriel teaches against what is now recited in claim 3.

The Office Action relies on the Lee reference for showing a two-step etching process. However, Lee does not remedy the deficiencies of Gabriel that are discussed above, so both references together would not have led an ordinarily skilled person to the invention now defined by independent claim 3.

Like claim 3, independent claim 15 recites that N type ions are implanted in a first region having a first area and P type ions are implanted in the second region having a second area. In addition, claim 15 recites that the N type gate electrode that is etched occupies an area that is smaller than the first area and, similarly, the P type gate electrode that is etched occupies an area smaller than the second area. These features are not suggested by the references.

The remaining claims depend from the independent claims discussed above and recite additional limitations to further define the invention. They are therefore patentable along with their independent claims and need not be further discussed.

For the foregoing reasons, it is therefore respectfully submitted that this application is in condition for allowance. Reconsideration of the application is respectfully requested.

Respectfully submitted,



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